

We claim:

- 1.** An apparatus comprising:

 - pseudo skin;
 - a receiver, wherein said receiver receives an end effector; and
 - a first device for performing a first skin-interaction technique,

wherein said receiver and said first device are disposed beneath said pseudo skin.
- 2.** The apparatus of claim 1 wherein an insertion region for said end effector is defined at a site at which said end effector is received by said receiver, and wherein said insertion region is proximal to a first region of said pseudo skin.
- 3.** The apparatus of claim 2 wherein:

 - said first skin-interaction technique comprises at least one of either palpation or occlusion;
 - a second region of said pseudo skin is accessible to perform said first skin-interaction technique; and
 - said first region of said pseudo skin is closer to a user than said second region of said pseudo skin when said user is using said apparatus.
- 4.** The apparatus of claim 2 further comprising a second device for performing a second skin-interaction technique, wherein said second device is disposed beneath said pseudo skin.
- 5.** The apparatus of claim 4 wherein:

 - said second skin-interaction technique comprises skin stretching;
 - a third region of said pseudo skin is accessible to perform said second skin-interaction technique; and
 - said third region of said pseudo skin is closer to a user than said first region of said pseudo skin when said user is using said apparatus.

6. The apparatus of claim 1 further comprising a housing, wherein said housing has an anterior portion, a posterior portion, an upper surface and a lower surface wherein, in use:

- said anterior portion is proximal to a user;
- said posterior portion is distal to said user;
- said lower surface is proximal to a support surface on which said apparatus resides; and
- said upper surface is distal to said support surface.

7. The apparatus of claim 6 wherein said upper surface is no more than about 5 inches above said lower surface.

8. The apparatus of claim 6 wherein said housing comprises at least one opening proximal to said upper surface thereof to access said pseudo skin.

9. The apparatus of claim 6 wherein said housing comprises a handle proximal to said anterior portion by which a user grips said apparatus during use.

10. The apparatus of claim 6 wherein:

- an insertion region for said end effector is defined at a site at which said end effector is received by said receiver;
- said insertion region is proximal to a first region of said pseudo skin;
- and a first end of said receiver is relatively closer to said insertion region and a second end of said receiver is relatively further from said insertion region.

11. The apparatus of claim 10 wherein:

- said first skin-interaction technique comprises at least one of either palpation or occlusion; and
- said first end of said receiver is closer to said anterior portion of said housing than said first device.

- 12.** The apparatus of claim 10 wherein:
said first skin-interaction technique comprises at least one of either palpation or occlusion; and
an upper-most surface of said first device extends a greater distance above said lower surface of said housing than said first end of said receiver.
- 13.** The apparatus of claim 10 further comprising a second device for performing a second skin-interaction technique, wherein said second device is disposed beneath said pseudo skin.
- 14.** The apparatus of claim 13 wherein:
said first skin-interaction technique comprises one of either palpation or occlusion; and
said second skin-interaction technique comprises skin-stretch.
- 15.** The apparatus of claim 14 wherein at least some portion of said second device is closer to said anterior portion of said housing than said first device.
- 16.** The apparatus of claim 14 wherein at least some portion of said second device is closer to said anterior portion of said housing than said first end of said receiver.
- 17.** The apparatus of claim 14 wherein said first end of said receiver is closer to said anterior portion of said housing than said first device.
- 18.** The apparatus of claim 14 wherein an upper-most surface of said first device extends a greater distance above said lower surface of said housing than said first end of said receiver.
- 19.** The apparatus of claim 14 wherein an upper-most surface of said first device extends further above said lower surface of said housing than an upper-most surface of said second device.
- 20.** The apparatus of claim 1 wherein at least a portion of said receiver is disposed beneath an upper-most surface of said first device.

21. The apparatus of claim 6 further comprising an electronics/communications interface, wherein:

said electronics/communications interface receives signals from sensors that are associated with at least one of said first device or said receiver; and

said electronics/communications interface is disposed beneath said pseudo skin.

22. The apparatus of claim 21 wherein said electronics/communications interface is closer to said posterior portion of said housing than said first device.

23. The apparatus of claim 21 wherein said electronics/communications interface is closer to said posterior portion of said housing than said receiver.

24. The apparatus of claim 21 wherein said electronics/communications interface comprises a printed circuit board, and further wherein a major surface of said printed circuit board is disposed orthogonal to an uppermost surface of said first device.

25. An apparatus comprising:

a housing;

an end effector, wherein said end effector is inserted into said housing during the performance of a simulated vascular-access procedure; and

a plurality of mechanisms, wherein said plurality of mechanisms are contained completely within said housing, and wherein said plurality of mechanisms include:

a first mechanism is for simulating a first skin-interaction technique; and

a second mechanism for receiving said end effector.

26. The apparatus of claim 25 wherein:

said housing has a longitudinal axis;

a first end of said longitudinal axis defines an anterior portion of said housing;

a second end of said longitudinal axis defines a posterior portion of said housing; and

in use, said anterior portion is proximal to a user and said posterior portion is distal to said user.

27. The apparatus of claim 25 wherein said plurality of mechanisms are disposed beneath a pseudo skin.

28. The apparatus of claim 25 wherein said mechanisms includes a third mechanism for simulating a second skin-interaction technique, and wherein said end effector is at least one of either a needle or a catheter.

29. The apparatus of claim 28 wherein:
said first skin-interaction technique is skin-stretch;
said second skin-interaction technique is at least one of either palpation or occlusion; and
at least a portion said first mechanism is disposed at a substantially different position along said longitudinal axis than said second mechanism and said third mechanism.

30. The apparatus of claim 28 wherein:
said first skin-interaction technique is skin-stretch;
said second skin-interaction technique is at least one of either palpation or occlusion; and
said first mechanism is closer to said anterior portion of said housing than said second mechanism and said third mechanism.

31. The apparatus of claim 28 wherein:
said first skin-interaction technique is skin-stretch;
said second skin-interaction technique is at least one of either palpation or occlusion; and
at least a portion said second mechanism is disposed at a substantially different position along said longitudinal axis than said first mechanism and said third mechanism.

32. The apparatus of claim 28 wherein:

said first skin-interaction technique is skin-stretch;

said second skin-interaction technique is at least one of either palpation or occlusion; and

said third mechanism is closer to said posterior portion of said housing than said first mechanism and said second mechanism.

33. The apparatus of claim 31 wherein said portion of said second mechanism is flanked by said first mechanism and said third mechanism along said longitudinal axis.

34. The apparatus of claim 28 wherein:

a user interacts with said first mechanism at a first site at an upper surface of said housing;

said user interacts with said second mechanism at a second site at said upper surface of said housing;

said user interacts with said third mechanism at a third site at said upper surface of said housing; and

a position of each of said first site, second site, and third site along said longitudinal axis corresponds to said positions of said respective first mechanism, second mechanism, and third mechanism along said longitudinal axis.

35. An apparatus comprising:

a pseudo skin;

a plurality of mechanisms with which a user interacts for simulating a vascular-access procedure, wherein said plurality of mechanisms are disposed under said skin; and

a housing, wherein said housing contains said plurality of mechanisms.

36. The apparatus of claim 35 wherein said housing is no more than about 5 inches in height.

37. The apparatus of claim 35 wherein said housing is no more than about 4 inches in height.

38. The apparatus of claim 35 wherein at least one of either a needle or catheter is disposed outside of said housing until inserted therein during a simulated vascular-access procedure.

39. The apparatus of claim 35 further comprising a data processing system, wherein said data processing system receives signals from sensors that are associated with said plurality of mechanisms.

40. The apparatus of claim 35 wherein said plurality of mechanisms comprise discrete devices, wherein a first of said devices is for enabling a user to perform a skin-stretch technique, a second of said devices is for receiving a needle or catheter or both, and a third of said devices is for enabling a user to perform at least one of either a palpation technique or an occlusion technique.